



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,171	02/01/2002	Brian Samuel Beaman	YOR91996018GUS2	3582
7590 11/26/2008				
Dr. Daniel P. Morris, Esq.				
IBM Corporation				
Intellectual Property Law Department				
P.O. Box 218				
Yorktown Heights, NY 10598				
EXAMINER				
LEADER, WILLIAM T				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
11/26/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/066,171

**Applicant(s)**

BEAMAN ET AL.

**Examiner**

WILLIAM T. LEADER

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 49-60 and 66-102 is/are pending in the application.
- 4a) Of the above claim(s) 50-60, 67-80, 82-85, 87, 89, 95 and 97-102 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 49, 66, 81, 86, 88, 90-94 and 96 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Receipt of the papers filed on October 15, 2007, is acknowledged. Applicant has elected the species of Figure 7 and identified claims 49, 66, 81, 86, 88, 89, 90, 91, 92, 93, 94 and 96 as reading on figure 7. These claims have been examined with the following modification. Claim 89 is dependent on claim 87 which was not elected. Consequently, claim 89 has not been examined. It is noted that the wording of claim 89 is the same as that of claim 88 which has been examined. Thus, the claims under consideration are 49, 66, 81, 86, 88, 90, 91, 92, 93, 94 and 96. Claims 50-60, 67-80, 82-85, 87, 89, 95 and 97-102 are withdrawn from consideration.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 92 and 93 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 92 as written is dependent on itself and, consequently, is *prima facie* indefinite. Claim 93 is dependent on claim 92.

***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 49 is rejected under 35 U.S.C. 102(e) as being anticipated by Eldridge et al (US 6,110,823) for the reasons given in the previous office action.
6. As previously indicated, the Eldridge et al patent is directed to contact structures. The contact structures are formed by bonding a free end of a wire to a substrate, and subsequently overcoating the wire with a least one layer of material. See the abstract. These are the basic steps recited in instant claim 49. Figure 10K illustrates one of the several embodiments disclosed by Eldridge et al. One end 1086a of a wire having a first end and a second end is bonded to a surface of substrate 1076. This corresponds to the "providing" and "bonding" steps of claim 49. A layer of dielectric material (1094) is applied (column 67, lines 55-59). This corresponds to the "forming" step of claim 49. Eldridge et al additionally disclose that a layer of conductive material (1096) is then deposited over the coated wire (column 67, lines 62-67). As indicated in the abstract and column 1, lines 26-42, the method is for forming a plurality of connections. All limitations recited in claim 49 are taught by Eldridge et al.

7. Newly presented claims 81, 90, 91 and 96 are rejected under 35 U.S.C. 102(e) as being anticipated by Eldridge et al (US 6,110,823).
8. With respect to claim 81, Eldridge et al shows in figure 10K that the conductor has a shape which is partially curved and partially linear.
9. With respect to claim 90, Eldridge et al discloses a resilient and/or compliant (springy) contact structure which is securely mounted to an electronic component, and which may be used for effecting temporary connection of the electronic component to another electronic component (column 12, lines 43-47). The resilient contact structures can be used to temporarily connect an electronic component for procedures such as burn-in and testing of the electronic component (column 14, lines 44-47).
10. With respect to claim 91, Eldridge et al discloses that it is known to utilize a test device with a plurality of wires in high density PCB and IC (integrated circuit) testing applications (column 5, lines 1-11).
11. With respect to claim 96, figure 5 of Eldridge et al shows conductor 502 with first end 502a bonded to a terminal 512 on substrate 508. The second end is formed with ball (protuberance) 534. See column 46, lines 55-62. Figure 5 shows conductor 502 coated with inner coating layer 520 and outer coating layer 522. Eldridge teaches that the outermost (top) layer or both layers is/are a conductive material

(column 47, lines 15-18; lines 38-39). This clearly indicates that the inner layer may be other than a conductive material, i.e., a dielectric material.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge et al (US 6,110,823) in view of Saruwatari et al (US 5,233,011).

15. Claim 66 differs from Eldridge et al by reciting specific materials from which the dielectric layer is formed. The Saruwatari et al patent is directed to a process for preparing an insulated wire. The insulation is made from a polyimide. See the abstract. Aromatic polyimide has excellent mechanical properties, solvent resistance, electrical insulative properties, and the highest thermal resistance among organic polymers. See column 1, lines 18-22. The prior art of record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have formed the dielectric insulation around the conductors of Eldridge from polyimide because polyimide has excellent mechanical and electrical properties as taught by Saruwatari et al.

16. Claims 86, 88 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eldridge et al (US 6,110,823) in view of Nakata et al (US 5,665,610).

17. Eldridge et al recognizes that modern integrated circuits are generally produced by creating several, typically identical integrated circuit dies on a single semiconductor wafer (column 73, lines 1-4). "Burn-in" is a process whereby a chip (die) is either simply powered up or is powered up and signals exercising to some degree the functionality of the chip are applied. It is known to perform burn-in

prior to singulating the dies. Typically, the temporary connections to the dies are made by test probes or by “flying wires”. See column 73, lines 15-26.

18. Claim 86 differs from Eldridge et al by reciting that the plurality of conductors are distributed into a plurality of groups, while claim 88 recites that the groups are arranged in an array. The Nakata et al patent is directed to a semiconductor device checking method. Nakata et al teach that in order to guarantee the quality of bare (unpackaged) chips, it is necessary to perform checks such as burn-in while the device is part of the wafer. Nakata et al recognize that it takes a long time to check a plurality of bare chips formed on the wafer one by one. Consequently, it is required that a check such as burn-in should be made on a plurality, for example, 1000 or more bare chips while the chips are part of the wafer. A supply voltage and a signal to the check electrodes of a plurality of semiconductor chips formed on the wafer are simultaneously applied so as to operate the chips. It is necessary to prepare a probe card having a large number of probe terminals. See column 1, lines 27-46. Figure 3 shows an example of a semiconductor wafer housing for causing bump 15 of the contactor 14 to come in contact with the check electrode 11 of the semiconductor chip 10. See column 5, lines 41-44. As illustrated in figure 3(a) and 3(b), bumps 15 are distributed in a plurality of groups of 4 which form an array. It would have been obvious at the time the invention was made to have formed the plurality of conductors in Eldridge



into an array of groups as illustrated by Nakata et al because it would facilitate testing each chip of a plurality of chips on a single wafer.

19. Claim 94 recites holding the substrate for retractably moving the substrate toward an electronic device and applying electrical signals to the conductors.

Nakata et al disclose that in figures 3(a) and 3(b) element 21 is a holding plate for holding semiconductor wafer A. As shown in the figures, contactor 14 is adapted to be brought into contact with wafer A. See column 5, lines 45-54. As noted above, signals are supplied to the check electrodes so as to operate the chips. It would have been obvious at the time the invention was made to have provided a housing for retractably moving the substrate toward the conductors of Eldridge in a testing procedure as taught by Nakata et al because temporary contact with the wafer being tested would have been obtained.

### ***Response to Arguments***

20. Applicant's arguments filed April 3, 2006, have been fully considered but they are not persuasive. At page 21 of the response, applicant argues that Eldridge has no teaching of any method of forming a dielectric coating on elongated conductors. As pointed out in the previous office action, such a teaching is found in figure 10K. A layer of dielectric material (1094) is applied to flexible, elongated wire 1086 (column 67, lines 55-59).

***Conclusion***

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **WILLIAM T. LEADER** whose telephone number is (571) 272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/  
Primary Examiner, Art Unit 1795

/William Leader/  
November 19, 2008